

## Corporate world of Union Carbide

UNION CARBIDE, the world's leading producer of power sources for battery-operated watches, has announced the addition of a line of lithium cells to its extensive line of mercury and silver watch cells. The new cells were unveiled at the Eighth European Watch, Clock and Jewelry Fair, in Basel, Switzerland, April 19.

The lithium cell line, the result of extensive research and development, includes 1.5 volt cells with iron sulfide cathodes and three volt cells with manganese dioxide cathodes. Benefits of both types of cells are high resistance to electrolyte leakage and long shelf life. The three volt manganese dioxide cells have thin configurations and diameters significantly larger than the commonly available watch cells and are suitable for use in quartz LCD watches with backlighting and other functions requiring relatively high power.

GROUND WAS BROKEN RECENTLY for what was called "one of the most significant facilities to serve the fast-growing carbon fiber market." Capacity of the plant will be one million pounds of polyacrylonitrile (PAN) carbon fibers yearly when it starts producing in September, 1981. Production will be through the polymerization of acrylonitrile, an outgrowth of a technology exchange program entered into in 1970 with Toray Industries of Tokyo. Union Carbide plans to produce the PAN fibers at the Greenville, S.C., plant.

Carbon fibers are used to make airframes for aircraft and aerospace products and are being considered for lightweight automobile parts and driveshafts for trucks. Typically, such parts weigh about one-third as much as their steel counterparts.

## Dividend declared

The board of directors of Union Carbide has declared the company's 252nd consecutive dividend. It is 75¢ a share payable June 2 to stockholders of record on May 2. The last quarterly dividend was the same, paid on March 1.

## In this issue...

Solar energy helps heat the home, swimming pool and greenhouse of ORNL's Jim Schreyer, who also operates an experimental still for producing ethanol. See story and pictures of this "sunshiner" on Page 5.

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UNION  
CARBIDE

# Nuclear Division News

• Vol. 11/No. 8 • May 15, 1980

## Couch and his flying machine



## Leon Couch builds own 'wings'

If you've got \$11,000 extra cash, a brother-in-law with a big garage and a heap of talent, you might be able to construct your own helicopter.

That's exactly what Leon T. Couch, Y-12's Beta 4 Assembly, did.

He and his brother-in-law, Lewis Frank, a licensed pilot, got together about 2,000 man-hours ago and decided to build their own chopper. "Don't tell how many years," Couch said, "but the cost was \$7,500 then."

The Scorpion 133 has a 133-hp engine and can carry two passengers, or a total of 400 pounds. The 133-cu-in., four-cylinder, four-cycle, horizontally opposed engine is

water-cooled and has a 10-gallon gasoline tank, which limits the range of the machine to 125 miles from home.

Does flying a helicopter require special skills? Not necessarily, Couch advises, but you'd better practice a lot before you solo. "You can't believe how sensitive those controls are," he said.

Couch attended a flight school last spring in Tempe, Ariz., for a week but recommends more time than that. "I'm going back this fall for more training. You must learn autorotation, or landing without power in case your engine conks out."

The Couches live in Madisonville where there is plenty of open country for flying a chopper. "If you have a longer trip planned, you should file a flight plan with the local authorities," he advises.

Does Mrs. Couch enjoy the 'copter? "She's been up only once. That was enough for her," he said.

Cruising altitude for the flying machine is 12,000 feet. "That gives you a pretty good view of the surrounding mountains," Couch said.

Does the machine require a special brand of gasoline? "No, regular 93 octane will do it, although gasohol runs better than regular gas," Couch adds.

In describing the sensitivity of the controls, Couch described a small wood screw on the 25-foot roto blades. The absence of it throws the whole thing out of control.

The fiberglass helicopter is a far cry from Igor Sikorsky's first machine 50 years ago, and it is even further from Leonardo de Vinci's drawing several centuries ago. But it still fills man's primeval urge to free himself from the bonds of gravity and soar like an eagle in the open sky.

## Graduate school sets schedule for summer

The University of Tennessee announces its summer schedule with early registration set May 19-23. Classes begin June 18 and end August 22. The College of Business Administration offers economics; the College of Engineering features heat connection, project control with CPM and PERT and engineering economy; while the College of Liberal Arts will have vector analysis and special problems.

Additional information on the schedule may be obtained by calling extension 6-3429.





## New test measures diabetes control

by T. A. Lincoln, M.D.

In 1968, Dr. Samuel Rahbar at the University Hospital in Iran found an unusual hemoglobin (the protein in the red blood cell which carries the oxygen) in two out of 1200 patients. He noted that they were both diabetics. When he subsequently studied 47 other diabetics, including 11 with insulin-dependent diabetes, he found this same strange hemoglobin. He later came to the United States, where he made the initial fundamental biochemical and analytical studies.

The importance of Dr. Rahbar's discovery has taken over ten years to appreciate. It is now being used by many clinicians who specialize in diabetes to evaluate how well patients are controlling their diabetes.

Ninety to ninety-five percent of adult hemoglobin consists of one species of protein called hemoglobin A(HbA). The remaining five to ten percent is a mixture of a number of different types called glycosylated hemoglobins. Three to six percent of hemoglobin is type HbA1c. It is now

often called glycohemoglobin. When red blood cells circulate, some of the glucose combines with HbA1C in an essentially one-way reaction. The amount formed depends on the average amount of glucose in the blood stream during the red blood cells' 120-day life span.

The big advantage of glycohemoglobin is that it measures the average of the blood glucose over approximately six to ten weeks. Short-term fluctuations in blood glucose concentrations do not influence the glycohemoglobin nearly as much as long-term average elevations.

Until now, physicians had no good way to evaluate how well their diabetic patients were controlling their blood sugars. Ideal control would be maintaining the blood glucose as close to normal as possible. The problem with blood glucose evaluation in diabetic patients is the wide variation in the level depending on the time of day the specimen is withdrawn, the amount of food intake and exercise,

emotional tension, the dose of insulin and the presence of infections. Even in diabetics who take multiple insulin injections each day, the level varies widely.

Measuring the blood glucose only tells the physician what the level is at that particular moment. Measuring diabetes control therefore, provides a "moving target." The blood glucose level at one moment tells nothing about what it was the previous week or what it will be the next day. Of course, if the patient follows a rigid diet, gets regular exercise and takes the same amount of insulin each day, a specific blood sugar gives some indication of the quality of control. In general, however, it is a poor measure.

Testing the urine for sugar is a useful way of monitoring the control of diabetes in young insulin-dependent diabetics, but it, too, provides a "moving target." For example, the urine may test 4+ for sugar because the blood sugar rose to a fairly high level and the excess "spilled over" into the urine. As the insulin supply "caught up" with the excess a couple of hours after the meal, the blood glucose fell fairly rapidly and no more was excreted in the urine. The urine in the bladder represented an accumulated glucose excretion and did not show the current blood glucose level. In maturity-onset diabetes, the urine sugar is even less satisfactory. Many patients do not spill sugar in their

urine until the blood sugar gets much too high.

As a letter in the medical journal *Lancet* described the advantage of measuring glycohemoglobin, "...it condenses the ebb and flow of control into a single number, which reflects mean blood-glucose over the previous six weeks."

Unfortunately, there are some problems. When the level of the glycohemoglobin is low or high, it is especially useful. When it is only modestly elevated, the interpretation is less clear. The evidence that high but short-lived episodes of elevated blood glucose do not influence the glycohemoglobin nearly as much as long-lived elevations is not completely convincing. There is also evidence that a small portion of the glycohemoglobin is reversible and that episodes of low blood sugar may reduce it fairly rapidly. Fortunately, this does not impair the effectiveness of the test. The test can now be easily and accurately performed in most hospital laboratories. Like any test, however, it must be performed with care. The reaction being measured is extremely temperature-sensitive.

Complications of diabetes are now believed to reflect the long-term failure of adequate blood sugar control more than anything else except possibly the basic genetic defect. The measurement of glycohemoglobin offers a new way of assessing the success of the treatment program.

*(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 21, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)*

### Patent granted

Nakwon Cho, ORGDP, for "Fast-Acting Valve Actuator."

## Separation Systems plans May picnic

The Separation Systems Division's annual picnic will be held May 17 at the Clark Center Recreation Park. Activities will begin at 10 a.m. and will include softball and other competitive activities for adults, various games for children, the dunking booth and other entertainment for all. The meal will be served at 4 p.m. and will consist of barbequed pork, hot dogs, baked beans, slaw, potato chips and drinks. Ticket prices are \$3.25 for adults, \$1.25 for children ages 6 to 11, and "no charge" for children under 6. Tickets may be obtained from any member of the picnic committee or by contacting Nancy Black, extension 6-0147.

## Memorial Day is official holiday

Monday, May 26 is an official holiday for Nuclear Division employees and no one is required to work unless his/her presence is required for continuous operations or plant protection.

May 26 is Memorial Day honoring those who have given "the last full measure of devotion."

## Paducah retirees planning bus trip

Paducah retirees are busy organizing for the big reunion set at Clark Center Recreation Park in Oak Ridge June 13. Vans or a chartered bus will bring the honored guests down to the picnic. Mildred Lockhart, 898-2440, is chairman of the telephone committee, assisted by Theota Long and Margaret Slaughter.

The Paducah retirees have elected Dock Trentham, president; Rex McDowell, secretary-treasurer; and Audry Bekman, corresponding secretary. Charles and Leora Dallas and Nell Trentham are on the refreshment committee, and Jesse Knott is chaplain and chairman of special events. The Paducah club will meet at 6:30 at the Western Sizzlin Steak House in Paducah June 5.

## Engineering sets picnic on June 7

"OLYMPIX" is the theme of this year's Engineering Division picnic, set Saturday, June 7, at the Clark Center Recreation Park. "If you can't make it to Moscow, you can make it to the park," organizers say.

There will be plenty of food, fun, games and entertainment, as these pictures from last year's event show.

Tickets will be available throughout the engineering sections in the three Oak Ridge plants. The festivities are scheduled from 1 to 8 p.m.





# Worrell named manager Division's labor relations

Robert D. Worrell, manager of Central Employment since 1977, has been named Manager of Labor Relations. He succeeds John M. Ball, who will retire August 1 after 29 years of service.

Worrell will be succeeded by Daniel E. Anderton, superintendent of the Personnel Relations Department, ORNL. Both Worrell and Anderton will report to Patrick C. Fourny, manager of Employee Relations for the Nuclear Division.

Worrell, who is a native of Hope, Ind., received his bachelor's degree in industrial management from the University of Colorado in 1955 and has done work on his master's degree at the University of Tennessee.

He joined Union Carbide in 1960 and was assigned to the Employment Department at the Y-12 Plant. Three years later he transferred to ORNL, where he was assigned as a labor relations analyst. He was named superintendent of the Labor Relations Department in 1967 with additional responsibilities for benefit plans. He was named wage and salary administrator at ORNL in 1974.

He is a lieutenant colonel in the Air National Guard and a member of the Tennessee Valley Personnel Association.

Worrell and his wife, the former Catherine Cherry of Knoxville, live at 1537 Coleman Road, Knoxville.

Anderton, a native of Knoxville, received both his bachelor's degree and law degree from the University of Tennessee. Following graduation in 1967, he was appointed an employment and labor relations representative at the Y-12 Plant. In 1975 he transferred to ORNL, where he has served as Superintendent of Personnel Relations with responsibility for labor relations, and benefit plans and counseling.

He is a member of the Tennessee Chapter of the Industrial Relations Research Association.

Anderton and his wife, the former Charlotte Dominick, also of Knoxville, live at 8609 Sandhurst Drive, Knoxville, with their children, Jane and Daniel Jr.



Robert D. Worrell



Daniel E. Anderton

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## Nuclear Division News

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## Question Box

# Parking; Investment Account

### Angle parking

QUESTION: Assuming that it is safer (for both car and driver) to leave an angle car parking space in a forward direction, would it not be advisable to reroute the ORGDP parking lot traffic pattern to use "back-in" parking? If it is not safer, why is it done at ORNL?

ANSWER: Considerable effort has been made at the ORGDP to provide adequate parking facilities that are safe to enter, park and leave. Extensive study was involved in the process of designing the traffic flow and parking arrangements to make the best use of the parking areas available. The design selected does provide for pull-in parking.

A number of years ago, ORNL officials adopted back-in parking as a part of their area emergency evacuation plans and have continued the practice.

We are unable to discern any difference in the number of accidents due to pull-in versus back-in parking. Most parking lot accidents are the result of operator inattention, violation of yield or stop signs, not following the designated flow pattern

and excessive speed after leaving the parking place. A check with the National Safety Council did not reveal any statistics on the subject of back-in versus pull-in parking or any documented recommendations concerning the matter.

### Investment account

QUESTION: Are there disadvantages as far as our Union Carbide pension is concerned with beginning an Investment Retirement Account? My bank tells me one thing; fellow employees tell me something else. Also, are there legal problems involved? I am past 40, a relatively new employee, and wish to invest in an IRA if it is to my best advantage.

ANSWER: There is no decision to be made. Money cannot be put into an IRA in any calendar year in which an individual is a participant in a qualified pension plan, even if such participation is for only a single day.

All employees of Union Carbide are participants in the Pension Plan from their first day of employment, even though they may not have a vested right to a pension until ten years later. An employee cannot decline

participation in the plan and therefore is barred from IRA contributions in any year in which employed by Carbide.

### Personal property

QUESTION: What is Company policy regarding bringing personal property such as coffee makers, microwave ovens, etc., on the job?

ANSWER: Company policy regarding personal property on Company premises is expressed in "You at Union Carbide," page 34, Regulation No. 6, as follows:

"You are not allowed to bring into the plant personal property other than that required in the performance of your work, except those items authorized by your supervisor, or small personal items which will not interfere with work performance or create safety or personnel problems."

Of the two items you mentioned, the coffee maker would probably be permitted by your supervisor, whereas a microwave oven would not be allowed. Due to safety considerations, the only microwave ovens presently permitted for new installation on Company premises are those installed by the Company or by the installation's vending machine contractors. All microwave ovens must comply with Company installation and safe operating procedure, and periodic inspections are held by Health Physics/Industrial Hygiene on a regular basis.

### Fragmenting PLV?

QUESTION: We know that PLV (pay in lieu of vacation) must be accompanied with a week off (vacation). Why can't fragmented vacation be applied to accompany PLV?

ANSWER: Pay in lieu of vacation (PLV) is not intended to be an earnings supplement. Rather, it was designed to enable eligible employees to take pay for a portion of their regular vacation time so that they might have a sum of money to help defray the expenses of their vacation.

This purpose would not be accomplished if PLV could be taken with fragmented vacation. Under the provisions of the Vacation Plan, PLV currently is available to employees with 10 or more years of service, provided it is requested concurrently with a full week of actual vacation time.

### Cumulative information

QUESTION: Since our checks are calculated and printed by computer, would it be possible to add blocks to the check stubs indicating year-to-date dollar amounts for categories such as salary, FICA tax, savings plan, etc.?

ANSWER: Adding year-to-date amounts to the check stub as you request would involve a significant amount of reprogramming, with additional manual checking in many instances. We do not feel this additional expense can be justified at this time.



# Immediate action crucial when tornado strikes

When a tornado approaches, your immediate action may mean life or death. According to the American Red Cross, you should seek inside shelter, preferably in a tornado cellar, underground excavation, or a steel-framed or reinforced concrete building of substantial construction. **Stay away from windows!**

## ● IN CITIES OR TOWNS

In office buildings—stand in an interior hall-way or a lower floor, preferably in the basement.

In factories—on receiving a tornado warning, post a lookout. Workers should move quickly to the section of the plant offering the greatest protection in accordance with advance plans.

In homes—the basement usually offers the greatest safety. Seek shelter under a sturdy workbench or heavy table if possible. In a home with no basement, take cover under heavy furniture in the center part of the house. Keep some windows open, but stay away from them!

Mobile homes are particularly vulnerable to overturning during strong winds. Trailer parks should have a community shelter. Appoint a community leader responsible for

constant radio monitoring during threatening weather or during watch periods.

## ● IN SCHOOLS

Whenever possible, go to an interior hallway on the lowest floor.

Avoid auditoriums and gymnasiums or other structures with wide, free-span roofs.

If a building is not of reinforced construction, go quickly to a nearby reinforced building, or to a ravine or open ditch and lie flat.

## ● IN OPEN COUNTRY

Move away from the tornado's path at a right angle. If there is no time to escape, lie flat in the nearest depression, such as a ditch or ravine.

## ● KEEP LISTENING

Your radio and television stations will broadcast the latest tornado advisory information.

**Call the Weather Service only to report a tornado.**

**Remember: Tornado watch** means tornadoes are expected to develop. **Tornado warning** means a tornado has actually been sighted.

# News About People

Carl C. Koch and Harry L. Yakel Jr. have been elected fellows in the American Association for the Advancement of Science. They join some 90 other Nuclear Division staff members who have been so honored. The election, by the AAAS Council, recognizes members "whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished."

Koch was honored for research on superconductivity and superconducting materials, alloying behavior and phase transformations in metals. He joined Union Carbide in 1965 and in 1970 became leader of the superconductivity group. Most recently, after two years as technical assistant to Alex Zucker, ORNL associate director for the physical sciences, he has served as leader of the metastable materials group.

Yakel, group leader for X-ray



Koch

research and applications, was recognized for research using X-ray diffraction techniques to determine the crystal structures of inorganic and metallic materials. He joined Union Carbide in 1953 as a supervisor in the X-ray diffraction laboratory.

## Safety Scoreboard

Time worked without a lost-time accident through May 8:

ORGDP .....	94 Days	2,963,614 Employee-Hours
ORNL .....	22 Days	414,156 Employee-Hours
Paducah.....	350 Days	3,801,000 Employee-Hours
Y-12 Plant.....	150 Days	5,226,000 Employee-Hours

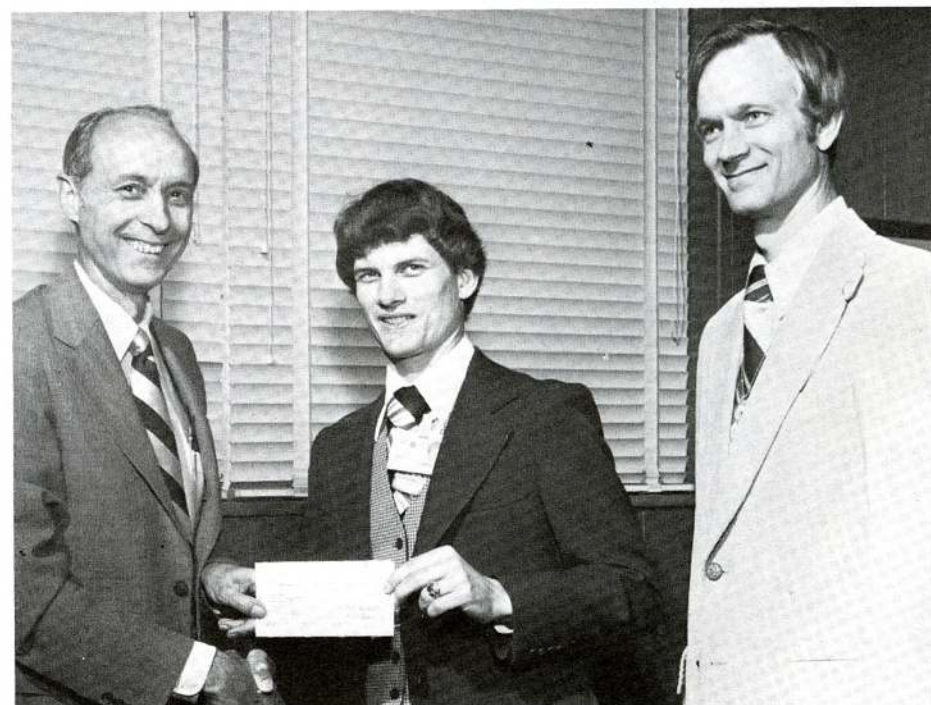
# Educational assistance program 'pays off' for employees

Counterclockwise, from below:

**INDUSTRIAL EDUCATION**—Homer Moss, Y-12 Safety Department, gets congratulations and a check after receiving his master's degree in industrial education from the University of Tennessee. He is flanked on the left by Clarence Johnson and by Herm Snyder, right.

**PHD IN CHEMISTRY**—Roland Seals received his PhD recently in chemistry from the University of Tennessee. Bill Dodson, superintendent of Development, left, presents Seals his educational assistance refund, while Jim Ferguson, Instrumentation and Characterization Department, looks on from right.

**MBA DEGREE**—Robert C. Boals, accounting analyst in Y-12's Product Engineering and Scheduling, receives the remainder of his educational expenses after obtaining his MBA from the University of Tennessee. Harwell Smith, division superintendent, presents Boals his check, as Bill Thompson looks on from right.





# Moonshining for fuel with solar energy

by Portia Guettner

Even when it's cold outside, Jim Schreyer can swim, soak in a hot bathtub, keep warm and eat a vine-ripened tomato. Solar energy makes all these things possible at the Schreyer home in the Solway Community of Knox County.

Schreyer, who is associated with the Solar and Special Studies Section of ORNL's Energy Division, began heating his swimming pool with homemade solar collectors almost 18 years ago.

He became interested in solar energy when he had to buy 200 gallons of fuel oil each summer to heat his pool. "I got to thinking about all the free sunshine around and just decided I'd figure out a way to use it," he said.

Schreyer's pool is covered with an aluminum roof where he spreads 800 feet of black, heat-resistant plastic hoses that are used as solar collectors. When the roof temperature reaches 75 degrees, the water is pumped through the pipes and back into the pool at a temperature of 100 degrees. The system maintains the pool temperature at 80 degrees all summer.

## Turn on the sun

The hoses won't melt as long as water is pumped through them, and the pump shuts off automatically at night. The system cost \$200, and the old fuel tank is still full of 10-cents-a-gallon oil.

"I don't mind the water cooling off during the night," Schreyer said. "There's usually plenty of sunshine to reheat the pool the next day."

In addition to warming the swimming pool, the sun has provided practically all the hot water used by Schreyer's family for the past six years. The solar water-heating system, which has been maintenance-free since installation, required only three kilowatts of electricity last July.

"Back in January of '77, when it was 27 degrees and there were three inches of snow on the ground, the collectors were heating the water to 130 degrees," Schreyer said.

In an attempt to develop a more efficient system than the alcohol-water collectors he used for heating water, Schreyer set up two 40-foot, liquid refrigerant collectors in his backyard to provide space heating in his home. The main advantage of the refrigerant system is that it won't freeze in bad weather.

## Home and garden heat

The liquid refrigerant vaporizes in the collectors and moves by its own pressure to a heat exchanger where the water in a 1,000-gallon tank is heated to 80-110 degrees. Then the water circulates through a radiator, where a fan blows hot air into the house.

By heating his water and supplementing the heat for his home with solar energy, Schreyer cut his utility bills in half. Although the initial investment for the refrigerant collectors was almost \$1,700, he said it was worth it because he is now spending less money and using smaller amounts of non-renewable energy resources.

When he realized how much heat was being lost from the huge water tank, he decided to build a greenhouse around it. Tomatoes grow in the greenhouse year-round, along with tiny spring onions and bright red geraniums. A fan takes the place of summer breezes inside the tent-like facility to enable the tomatoes to pollinate.

## Solar alcohol-making

Pretty soon, Schreyer may be powering his lawnmower with ethanol (alcohol), from a federally licensed experimental still. The still



**GREENHOUSE GARDENING**—Jim Schreyer can toss a fresh garden salad for lunch and pick a pretty bouquet for the table all year long when he shops in his backyard greenhouse.

should produce a half gallon of ethanol a day and will be heated by a 40-foot refrigerant collector.

Frequently, visitors drop by to see the solar still, and give him advice about "moonshining" that has been passed down for years in the hills of East Tennessee. But, it has been through chemical experiments that he has found the optimum conditions for fermenting and distilling alcohol. Therefore, it is no longer a "hit and miss" proposition.

For example, the right kind of water has always been essential for the fermentation process to work, and good spring water was like a magic potion. Schreyer determined that the perfect acid level for the water used in the process is a pH of 4. Once the acid level is adjusted, yeast starts the fermentation every time.

Seldom missing a chance to recycle anything, he takes advantage of the first stage of the ethanol-making process by placing the jugs of fermenting mixture in his greenhouse. The carbon dioxide which is being given off helps to grow healthy, firm vegetables and exotic, flowering plants.

## Fuel for the farm

Schreyer's research at ORNL involves testing a solar-heated still similar to the one at his home. This experiment will determine if farmers can use the system to produce their own fuel from agricultural products at a reasonable cost.

Recently, he helped draft a Tennessee law which makes it

possible for individuals to manufacture alcohol for use as fuel. However, they must notify the Department of Revenue in writing and agree to denature the alcohol so it won't be fit to drink.

In 1978, Schreyer and co-workers at the Y-12 Plant were recognized by *Industrial Research and Development* magazine for developing an effective, inexpensive carbon coating for solar collectors.



**MOONSHINING FOR FUEL**—The sun heats mash until 95-percent ethanol is distilled. Schreyer denatures the liquid and adds dye to discolor the alcohol so that visitors will know it is a fuel and is not for drinking.



**FREE ENERGY**—Solar collectors are used to provide heat and hot water for the Schreyer home. The collectors are coated with a gray carbon paint called "microsorb," which absorbs sunlight 17 to 30 percent more effectively than black carbon paint which is still used by many manufacturers.





**THREE-IN-A-ROW**—The Dynamics have won ORNL's A League bowling crown for the third year in a row. Seated from left are Wayne McLaughlin, Larry Hodge and Charley Hinton. Standing are Alvin Boatwright, Gene Hawkins, Benny Wood and Leon Hurd.

## Golf tournament results...

### Y-12

Jim Vance took the top prize at Cedar Hills Golf Club as Y-12ers hit the greens for the first time this year. Jim's 72 was followed by M Peck's 75. In handicap scoring it was Ken Cook, 74; and Dan Rowan, 76.

Division Two saw R. E. Rains card an 82; Bud Curry, 85. Handicap laurels went to Jesse Moles, 84; and J. W. Halsey and J. D. Ball, each with 91.

The last division was taken by C. V. Whitson, 86; and J. A. Moretz, 90. Handicap lows were totaled by Emmett Walker, 97; and W. K. Mink, 94.

Golf balls may be picked up by the winners at the Recreation Office, Building 9711-5.

### ORNL

ORNL's first run at the greens was at Southwest Point, with R. Richardson carding a 76; followed by K. Lannom, 77. Handicap lows went to H. Butler, 76; and J. Johnson, 78.

The second flight was copped by J. Bridges, 81; and G. Holt, 84.

Handicap scores were earned by N. Case, 82; and S. Smith, 83.

The last division belonged to B. Denning, 88; and R. Livesey, 90; while handicap lows were taken by D. McKendrick, 97; and F. Jones, 92.

The winners' prizes are in Room J-108, 4500N building. Contact Debbie Walker.

### ORGDP

Whittle Springs, the scene of K-25's first golf battle, saw C. J. Phillips put a 75 score down; Bill Thomas, 76. Larry Studinger took handicap honors with 80; Kyle Johnson, 77.

In the second division John Nicol came in with a 78; J. F. Monney, with 81. Handicap lows went to Lee Ford, 87; and R. E. Lawley, 91.

The third division saw a three-way tie with W. E. Hall, L. C. Wright and Eddie Acuff all shooting an 86. Dan Charles was second with 92. M. H. Hayes, 86; and Allen Williams, 87, took handicap honors.

Golf balls are available at Room 133, Peggy Collier, Building K-1001.



**HEALTH AND SAFETY RESEARCH DINNER-DANCE**—Members of ORNL's Health and Safety Research Division are shown at their recent dinner-dance at the Oak Ridge Country Club.

## Bowling leagues wind down...

### ORNL A...

The Ten Pins won over the Dynamics in the second half of ORNL's A League. The Dynamics, however, who took the league's first half, put the Ten Pins out of action in the roll-off.

### Monday Mixed...

Charlie's Angels have a two-point lead over the Four's Company in the UCC Monday Mixed League. G. Killough currently holds the high-handicap series for the men with a 701. Cindy Cavender holds the record for the women with a 654.

### K-25 Tuesday...

The All Stars took the second half of the K-25 Tuesday Men's League from the Shifters. The Payoffs rolled high handicap game of 1161. The Atoms were second with 1148, and they took the high series of 3239, with the Payoffs taking a 3233.

### ORNL C...

The Easy Rollers beat the Remkeys in a roll-off recently to become ORNL C League champs. On the last night of regular play the Alley Rads rolled a 2991 high handicap series. Anderson, Alley Rads, rolled a 651 handicap series.

### Y-12 C...

The Anodes finished in first place over the Badgers in the C League's second half of play. Robert Carmack, Sunflowers, took high handicap series with a 709. Tom Hillard, Badgers, took second place with a 694; while Dick Huber, Badgers, took third standings with a 688. Norm Shamblin, Mini-Strikes, rolled high handicap game with a 287; Rob Carmack, 282; and John Hendry, Anodes, took a 271.

### Classic League...

The Eightballs won the second half over the Sprinters in the Classic League. Wayne Groppe, Ridgers, took season high handicap series, rolling a 707. Ed Tuell, Pendulums, had a 706; while Ted Higgins, Playboys, took a 703. E. J. Walker Sr., Tigers, rolled a 273 handicap game; while Ron LaPan, Pendulums, rolled a 272; and Bob Crowe, Kingpins, posted a 271.

### ORGDP Women's...

The Payoffs lead over the Hi-Rollers in the ORGDP Women's League. Sandy Biedel took bowler-of-the-week honors recently with a 218-260-200=678 series. The match of the week went to the Purchettes and Guttermaids. Total pins saw the Purchettes with a 2152 over 2124.

(Please see Page 7)

## Tee-Off Time Application for

May 31, 1980



- ☐ Y-12—Dead Horse Lake  
☐ ORNL—Cedar Hills  
☐ ORGDP—Southwest Point

**Foursome will Ride**  
Yes ☐ No ☐

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_ **Leader**

PHONE \_\_\_\_\_  
BLDG. \_\_\_\_\_  
TEE-TIME \_\_\_\_\_

Foursomes that ride carts will receive earlier time  
**COMPLETE AND RETURN TO THE Y-12 RECREATION OFFICE  
BUILDING 9711-5, MS-001**

Entries must be received prior to drawing on April 23, 1980.

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times. The leader ONLY for each foursome should call the Recreation Office, 4-1597, after 3 p.m., Wednesday for your time.



# UCC announces earnings for first quarter 1980

First quarter 1980 per share earnings of Union Carbide Corporation increased 41 percent over earnings for the first quarter of 1979, on a comparable accounting basis, William S. Sneath, chairman of the board, told the corporation's annual stockholders meeting in Atlanta, Ga. Earnings per share, before a nonrecurring credit, totaled \$3.32; the comparable total for 1979 would have approximated \$2.35.

Because of the change in method of accounting for investment tax credit, Union Carbide has reported a nonrecurring credit of \$3.28 per share in the first quarter of 1980, representing the cumulative effect of deferred investment tax credits for periods through December 31, 1979. As a result, the corporation's total first quarter net income per share was \$6.60.

The corporation reported 1980 first-quarter net income, before the nonrecurring credit resulting from the cumulative effect of the change in accounting principle, of \$219.9 million. The nonrecurring credit totaled \$217.3 million. Last year, net income for the first quarter was \$124.6 million before pro forma restating, \$128.9 million after restating.

Union Carbide's worldwide sales in the first quarter of 1980 increased 19 percent, to \$2.57 billion, Sneath said, a record for any quarter.

International customer sales increased 20 percent and exports increased 23 percent compared to the first quarter of 1979. Domestic customer sales increased 17 percent, Sneath said, with the strongest gains being achieved by Chemicals and

Plastics divisions, the Home and Automotive Products Division, the Carbon Products Division and the Electronics Division. Internationally, Canada, Europe and Africa reported the biggest sales gains.

Union Carbide's first quarter earnings included an after-tax gain of \$12.8 million, or 19 cents per share, due to foreign currency translation and exchange.

Sneath told stockholders that Union Carbide's capital spending budget in 1980 is set at about \$1 billion, compared to \$831 million last year.

He said that the corporation's earnings gain was made in the face of substantial increases in the cost of energy and raw material. "Despite these increases, we were able to maintain our margins, a fact that played a central role in our first quarter performance," he added.

Warren M. Anderson, UCC president, told stockholders at the annual meeting that the corporation had updated a strategic objective, made last year, to increase net income from \$394 million in 1978 to more than \$800 million in 1983. Several changes in accounting policy, effective in 1980, will add about \$140 million to that objective, he said.



**NEW MAIL CARRIER**—A new motorized mail carrier is now in use at ORNL. The carrier, which runs automatically along a magnetic tape, makes four deliveries each day in Building 4500 North.

## Y-12 employee, Jack Miller, dies



**Mr. Miller**

Jack J. Miller, stationary engineer in the Utilities Administration Department, Y-12, died at the Oak Ridge Hospital May 1. A native of North Carolina, he joined Union Carbide in 1954. He was a veteran of the U.S. Army.

Survivors include his wife, Marie Miller, 118 Independence Lane, Oak Ridge; daughters, Jane Miller and Patricia Stephens; his mother, Verta Miller; a brother, F. J. Miller; and two sisters, Clara Eller and Helen Heaton. Three grandchildren also survive.

Funeral services were held at Weatherford Chapel, with burial in Oak Ridge Memorial Park.

The family requests that any memorials be in the form of contributions to the American Heart Association, c/o Evelyn Brooks, Hamilton First Bank, Oak Ridge, 37830.

## More recreation

(Continued from Page 6)

### Hi Power Rifle...

The first match of the Carbide High Power Rifle League was taken by Jack Spurling, Y-12, with a 779 out of 800. Frank Barnes, ORNL, took second with 762; and Larry Weston, also ORNL, posted a 735. Other scores were D. Kiplingers, ORNL, 729; R. Wiegand, Y-12, 704; P. Glover, ORNL, 607; M. A. Baker, ORNL, 604; and I. Collier, ORNL, 182.

### UCC Mixed...

The Lickety Splits won the second half in the UCC Mixed League over the Hell Raisers. Bob DeBakker posted the season's high handicap series, 721. Jody Walker rolled high for women with a 705. John Brown rolled a 717 and Jan Jennings a 692. Al Gladson took high single game of 277; while Jan Jennings' 281 was first for women. Dave Mosely and Jody Walker came in second for high handicap game of the season.

## Anniversaries

### ORNL

#### 35 YEARS

Ralph Livingston, Chemistry; John M. Peele, Analytical Chemistry; and Thomas E. Rush, Plant and Equipment.

#### 30 YEARS

John S. Addison, Industrial Safety and Applied Health Physics; Virgil M. Johnson, Operations; William E. Saltee, Engineering; Mary P. Stooksbury, Environmental Sciences; and William Sewell, Plant and Equipment.

#### 25 YEARS

Swan E. Breeding, Thomas S. Noggle, George R. Archer, James L. Blankenship, Robert E. Kerby, Charles J. Claffey, Bobbie J. Hoyle and C. Robert Sherlin.

#### 20 YEARS

Dewey K. Diggs, Robert S. Stafford, Charles H. Abner, Caius V. Dodd, James P. Hickey, James H. Holladay, Kenneth H. Poteet, Wayne F. Johnson and George H. Llewellyn.

### ORGDP

#### 35 YEARS

Domenic S. Pesce, Engineering; Luther H. Grizzle, Maintenance; Charles L. Badwin, Finance,

Materials and Services; Norval B. Hockman, Operations; Ray J. Ellis, Operations; Samuel L. Gaines, Operations; Hubert Childs, Maintenance; and Charles Hackworth, Maintenance.

#### 30 YEARS

J. B. Wilhoit, Maintenance.

#### 25 YEARS

Mary Bell, Billey Kelley and William McCarley.

#### 20 YEARS

Robert Haymond, Lawrence Hawk, Charles Weaver and Richard Hoglund.

### Y-12 PLANT

#### 35 YEARS

Katherine O. Steed, Superintendents Division; and Clebert C. Roberts, Guard Department.

#### 30 YEARS

Mayford B. McCarter, General Shops; and Robert C. McGuffin, Electrical and Electronics.

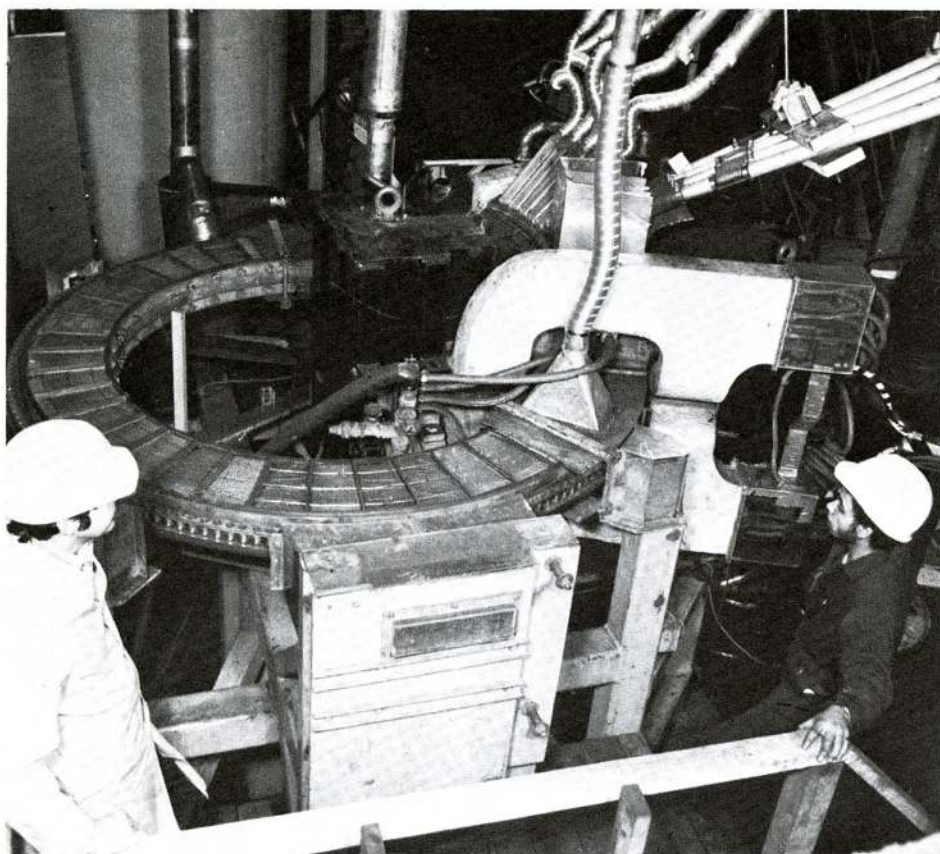
#### 25 YEARS

Carl C. Thornton, Samuel Edmonds, William E. Ramsey and Roger K. Carper.

#### 20 YEARS

Oaklie K. McConnell Jr.





**COAL CAROUSEL**—This carousel-type machine at Sala Magnetics, Inc., Cambridge, Mass., is being used in tests of a new technique developed in ORNL's Engineering Technology Division to magnetically separate inorganic, pollution-producing particles from dry ground coal. With the new process, called "high gradient magnetic separation," ORNL researchers have been able to remove more than 60 percent of the ash- and sulfur-producing minerals from coal, while retaining more than 90 percent of its heating value. Funding for the tests at Cambridge has been supplied by DOE and the Tennessee Valley Authority.

## Save Energy/Share The Ride

### ORNL

**VAN POOL MEMBER** from Cedar Bluff, Lovell Road and Campbell Station Road areas of West Knox to North or East Portals, 8-4:30. John Barnes, plant phone 4-6087; home phone 693-8608.

**RIDE NEEDED** from Oak Ridge Highway near Solway to East Portal. Prefer 8:15-4:45, flexible. Sig Peterson, plant phone 4-4483; home phone 690-3989.

**RIDE or JOIN CAR POOL** beginning June 9 from East Village area, Oak Ridge, to any portal, 8-4:30 (for summer employee). Ellen Puckett's residence, 483-7116.

**RIDERS for BUS POOL** from Middlebrook Pike area of Cedar Bluff, West Knoxville (including stops at Middlebrook Pike Methodist and Mars Hill Baptist churches and other areas of Cedar Bluff), to all portals, 8-4:30. Ray or Vic Claiborne, 693-1168.

**RIDER or CAR POOL MEMBER** from Cedar Bluff/Walker Springs area, West Knoxville, to any portal, 8-4:30. W. C. Hawkins, plant phone 4-4219; home phone 588-3014.

**RIDERS for VAN POOL** from Fountain City area (Tazewell Pike or Cedar Lane route), Knoxville, to any portal, 8-4:30. Gary Shepherd, plant phone 4-4238; home phone 687-5721 after 6 p.m.

**JOIN CAR POOL** from UT/Sutherland Avenue area, Knoxville, to East Portal, 8-4:30. Susan Rawlston, plant phone 4-5132, home phone 523-7453; or

Cindy Holmes, plant phone 4-4909, home phone 588-2303.

**JOIN or FORM CAR POOL** from Morningside Road area, Oak Ridge, to any portal, 8-4:30 or 8:15-4:45. Dick Strehlow, plant phone 4-4956; home phone 482-3240.

**ONE or TWO CAR POOL MEMBERS** from Pennsylvania, West Outer, Highland, or Hillside areas, Oak Ridge, to East Portal, 8:15-4:45. T. J. Burnett, plant phone 4-6683.

### Y-12 PLANT

**RIDE WANTED** from Kingston, Highway 58, to North Portal, 8-4:30. Teresa Craig, plant extension 4-0625; home Kingston 376-5247.

### ORGDP

**VAN POOL riders** from South Knoxville, Almart area and Karns, D Shift. First week free, any portal. John Ross, plant phone 4-9321, home phone Knoxville 577-0692.

**BUS RIDERS** from Kingston, Harriman and Midtown to Portals 1, 2, 4, 7, 8, 9 and 5. R. K. Hull, plant phone 6-0204, home phone Harriman 882-5618.

**RIDE or JOIN CAR POOL** from Claxton, B Shift. Anna Caswell, plant phone 4-2991, home phone Claxton 945-1382.

**VAN POOL RIDERS** from Halls/Powell area to any portal, ORGDP, straight day. Vic Crawford, plant phone 4-8176, home phone Powell 922-7697.

## Retirements



**Gilbert E. Berney**  
Maintenance  
Y-12  
35 years service



**Darit K. Branson**  
Alpha 5 North Shop  
Y-12  
20 years service



**George M. DelCour**  
General Shops  
Y-12  
33 years service



**M. Beth Devillez**  
Janitors Department  
Paducah  
29 years service



**Clarence W. Herndon**  
Electrical  
Paducah  
29 years service



**Ralph F. Hutchins**  
Quality Evaluation  
Paducah  
35 years service



**Hubert P. Jackson Jr.**  
Compressor Shop  
Paducah  
28 years service



**Paul R. McGee**  
Chemical Processing  
Paducah  
28 years service



**John G. Tate**  
9215 Rolling Mill  
Y-12  
33 years service



**Grover R. Talley**  
Process Maintenance  
29 years service



**Rupert B. Nanny**  
Process Maintenance  
29 years service



**Dorothy J. Utley**  
Laundry Department  
Paducah  
28 years service

**Solon T. Williams**  
Process Maintenance  
Paducah  
28 years service



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